AFRICAN EXPEDITION June 30, 1957 to June 22, 1958

Purpose

This expedition was primarily motivated by Dr. Ross' need for additional African specimens and biological data to augment his National Science Foundation-supported world monograph of the little known insect order Embioptera. Secondary but highly important purposes involved making a photographic study of African insects in both the still and motion picture medium, as well as general insect collecting.

To accomplist these objectives, particularly the first-mentioned one, it was necessary to visit as many different African life zones as possible rather than do intensive detailed work in but a few places.

Sponsorship

The principal sponsorship came to Dr. Ross from his research grant from the National Geographic Society. Additional funds were provided by the California Academy of Sciences and Dr. Ross. Not the least of the expedition's support came in the form of a willingness on the part of the expedition members to volunteer their services without pay. Important assistance was also received from many business concerns which made outright gifts of equipment and services or offered generous cost discounts. Without such aid the cost of such an extensive expedition would have been prohibitive.

Special thanks are also due to Mr. Richard E. Brace who volunteered his knowledge and labor to the planning and construction of the safari van body of the truck.

Personnel

(1) Edward S. Ross: Lead the expedition and concentrated on his Embioptera survey and photography. He also did much general insect collecting.

(2) Mrs. Wilda S. Ross: Fulfilled the vital but often abused role of "quartermaster" while contributing much valuable insect collecting

(3) Robert E. Leech: Acted as full-time collector, preparator and packer of specimens as well as general assistant in camping and upkeep of equipment.

(4) H. Vannoy Davis: Joined the expedition for a two month period late in 1958 to do still photography. He also sponsored the costly motion picture activity of the expedition.

General Itinerary

June 8, 1958 - Expedition left San Francisco by truck to port of New Orleans.
June 14, - Sailed from New Orleans aboard a Delta Line Freighter.
June 30 to July 22 - Collected in eight West African ports of call.
July 24 - Landed at Matadi, Belgian Congo (80 miles up the Congo River)
July 24-28 - Surveyed Mayumbe forests of lower Congo.
July 29 to August 20 - Drove across the Congo to Lake Kivu. Field work at 90 stations enroute. Set up base st I.R.S.A.C. near Bukavu.
Aug. 21 to Oct. 8 - Field work in eastern Congo, especially in rain forest. This included a five-day porter trip to the glacier level of the Ruwenzori Range.
Oct. 9-14 - Field work in Uganda.
Oct. 14 to Nov. 28 - Field work in Kenya and Tanganyika. Note: During this period the coast-to-coast crossing of Africa at the Equator was completed.
Nov. 29 to Dec. 11 - Returned to Lake Kivu, Belgian Congo via southern Uganda and Ruanda.
Dec. 20 to Jan. 5, 1959 - More field work in Kivu and Congo forests.
Jan. 6-9 - Field work in Urundi.
Jan10to Feb. 8 - Field work in S.E. Congo and Katanga.
Feb. 9-18 - Field work in N. Rhodesia and S.W. Tanganyika.
Feb. 18 to Mar. 1 - Field work in Nyassaland (full length).
March 1-8 - Fieldwork in southern N. Rhodesia.
March 8-24 - Field work in S. Rhodesia, including a short excursion into Mozanbique.
March 24 to April 3 - Fieldwork in the Transvaal.
April 3-12 - Field work in Natal.
April 12 to May 3 - Field work in Cape Province. During this period the expedition reached the Cape of Good Hope.
May 3-17 - Field work in South West Africa.
May 17 to June 7 - Field work in Angola.
June 10 - Boarded ship at Luanda.
June 10-22 - Collected at four ports of call in West Africa.
July 9 - Disembarked at New Orleans.
July 16, 1959 - Returned to San Francisco.

Summary of Accomplishments

1. Made 637 collecting stope over a carefully planned 26,000-mile overland journey during which nearly 300 nights were spent afield in camp.

2. General collection of insects and related groups totals more than 250,000 specimens. This is perhaps the largest lot of African insect research material to reach any New World institution.

3. Collected some 10,000 Embioptera specimens together with about 400 living cultures which provide a means for indefinitely rearing additional series. Previous to this expedition not more than 100 specimens of African Embioptera existed in New World museums.

4. Produced more than 5000 still photos, mostly insects in color, which will illustrate lectures, articles and books. An article entitled "Hunting Africa's Smallest Game" appeared in the March 1961 issue of National Geographic Magazine.

5. Exposed 10,000 feet of color 16 mm. motion picture film. With this it is hoped to tell the museum research story to a wider audience, especially through the television medium.

The 1967 California Academy of Sciences African Expedition
(Dr. Edward S. Ross & Mr. Alan R. Stephen)

List of Collecting Stops

1. South Africa: Hout Bay, Cape Peninsula; Sept. 8-19; Sea Level

2. South Africa: Buffels Bay, Cape Peninsula; Sept. 8-16; Sea Level

3. South Africa: Long Beach, Cape Peninsula; Sept. 9-16; Sea Level

4. South Africa: Camps Bay, Cape Peninsula; Sept. 13; Sea Level

BOTANIC GARDEN

5. South Africa: Kirchtenbosch, Cape Peninsula; Sept. 14; 25m.

6. South Africa: Olefants Bay, Cape Peninsula; Sept. 15; Sea Level

7. South Africa: 15 miles East of Paarl; Sept. 20; 400m.

NORLESTOR

8. South Africa: 5miles Northwest of Worcestor; Sept. 20, 1967; 300m.

SEDERBERG

9. South Africa: 12 miles South of Cedarburg; Sept. 21, 1967; 500m.

10. South Africa: Cedarburg; Sept. 21, 1967; 900m.

11. South Africa: 10 miles south of Algeria; Sept. 21, 1967; 900m.

12. South Africa: Papendorp; Sept. 22, 1967; Sea level

13. South Africa: NAMAQUALAND 18 miles south of Nuwerus; Sept. 22, 1967; 300m.

14. South Africa: 8 miles southeast of Garies; Sept. 23, 1967; 420m.

15. South Africa: Port Nolloth; Sept. 23, 1967; Sea level

16. South Africa: 20 miles north of Steinkopf; Sept. 24, 1967; 700m.

17. South West Africa: 10 miles south of Karasburg; Sept. 24, 1967; 850m.

18. South West Africa: Fish River Canyon, 40 miles west of Klein Karas; Sept. 25, 1967; 850m.

19. South West Africa: 10 miles northwest of Klein Karas; Sept. 26, 1967; 800m.

20. South West Africa: 2 miles north of Seeheim; Sept. 26, 1967; 250 950m.

21. South West Africa: 29 miles north of Bethanie; Sept. 26, 1967; 1150m.

22. South West Africa: 19 miles north of Duwisib; Sept. 27, 1967; 1400m.

23. South West Africa: 10 miles south of Nauchas; Sept. 28, 1967; 1580m.

24. South West Africa: 15 miles west of Windhoek; Sept. 28, 1967; 1620m.

25. South West Africa: 7 miles west of Windhoek; Oct. 1, 1967; 1850m.

26. South West Africa: 58 miles west of Windhoek; Oct. 1, 1967; 1850m.

27. South West Africa: 70 miles west of Windhoek; Oct. 2, 1967; 1700m.

28. South West Africa: 100 miles west of Windhoek; Oct. 2, 1967; 1050m.
no specimens for this locality.

29. South West Africa: 88 miles east of Walvis Bay; Oct. 2, 1967; 750m.

30. South West Africa: 18 miles east of Walvis Bay; Oct. 2, 1967; 180m.
no specimen for this locality.

31. South West Africa: Gobabeb Research Station, Namib Desert; 70 miles east of Walvis Bay; Oct. 2, 1967; 400m.
no specimens for this locality.

32. South West Africa: Gobabeb Research Station; Welwitschia Forest; Oct. 3, 1967; 420m.

33. South West Africa: Gobabeb Research Station; Sand dunes; Oct. 3, 1967; 400m. no specimens for this locality.

34. South West Africa: Swartbank; 30 miles west of Gobabeb Research Station; 407m.; Oct. 5, 1967
no specimens for this locality.

35. South West Africa: 10miles east of Gobabeb Research Station, (Natab); Oct. 6, 1967; 407m.
no specimens for this locality

36. South West Africa: 31 miles east of Gobabeb Research Station; Oct. 10, 1967; 810m.

NAMIB DESERT.

37. South West Africa: Garob Mine, 20 miles east of Gobabeb Research Station; Oct. 10, 1967; 750 m.

38. South West Africa: 10 miles north of Swakopmund; Oct. 12, 1967; Sea level.

39. South West Africa: Spitzkopf, 50 miles east of Henties Bay; Oct 12, 950m.

40. South West Africa: 15 miles north of Usakos, (Philipp's Ranch); Oct. 13, 1967; 1100m.

41. South West Africa: 16 miles west of Windhoek; Oct. 15, 1967; 1620m. 1520m?

42. South West Africa: 70 miles west of Windhoek; Oct. 21, 1967; 1750m.
no specimens for this locality.

43. South West Africa: 90 miles west of Windhoek; Oct. 21, 1967; 1300m.

44. South West Africa: 31 miles east of Gobabeb Research Station, Namib Desert; Oct. 21, 1967; 810m.

45. South West Africa: Gobabeb Research Station, Namib Desert; Oct. 21, 400m. 407 m.

46. South West Africa: Spitzkopf, 50 miles East of Henties Bay; Oct. 24, 1967; 950m.

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47. South West Africa: 15 miles north of Usakos, (Philipps Ranch); Oct. 24, 1967; 1100m.

48. South West Africa: Spitzkopf, 75 miles east of Henties Bay; Oct. 25, 1967, 1100m.

BRANDBERG

49. South West Africa: Tsisab Canyon, Brandenburg Mountain Range; Oct. 26, 1967; 650m.

50. South West Africa: Ombika, Entrance to Etosha Pan Game Reserve; Oct. 27, 1967; 1150m.

51. South West Africa: Namutoni, Etosha Pan Game Reserve; Oct. 28, 1967; 1100m.

52. South West Africa: Petrified Forest, 30 miles west of Welwitschia; Oct. 28, 1967; 1010m. 800m.

53. South West Africa: 64 miles west of Welwitschia; Oct. 29, 1967; 750m.

54. South West Africa: 45 miles east of Torrabai; Oct. 29, 1967; 800m.

55. South West Africa: 19 miles east of Torrabai; Oct. 29, 1967; 500m.

56. South West Africa: 5 miles east of Torrabai; Oct. 30, 1967; 20m.

57. South West Africa: 45 miles east of Torrabai; Oct. 30, 1967; 800m.

58. South West Africa: 41 miles west of Welwitschia; Oct. 30, 1967; 500m.

59. South West Africa: 10 miles north of Windhoek; Oct. 31, 1967; 1600m.

60. South West Africa: 45 miles east of Gobabis; Nov. 3, 1967; 1350m.

61. Botswana: 28 miles east of Mamono; Nov. 3, 1967; 1150m.

62. Botswana: 18 miles east of Kalkfontein; Nov. 4, 1967; 1100m.

63. Botswana: 32 miles east of Kalkfontein; Nov. 4, 1967; 1100m.

64. Botswana: 16 miles west of Ghanzi; Nov. 4, 1967; 1100m.

65. Botswana: Ghanzi; Nov. 4, 1967; 1100m.

66. Botswana: 34 miles east of Ghanzi; Nov. 4, 1967; 1100m.

67. Botswana: 54 miles east of Ghanzi; Nov. 4, 1967; 1050m.

68. Botswana: 87 miles southwest of Maun; Nov. 5, 1967; 930m.

69. Botswana: 49 miles southwest of Maun; Nov. 5, 1967; 900m.

70. Botswana: 23 miles southwest of Maun; Nov. 5, 1967; 900m.

71. Botswana: Maun; Nov. 5, 1967; 930m. + 6-81-67

72. Botswana: 42 miles northeast of Maun; Nov. 7, 1967; 930m.
MOREMI

~~73~~ 72. Botswana: Moremi Game Reserve. Okavango Swamp; Nov. 7, 1967; 930m.

~~74~~ 75. Botswana: 35 miles northeast of Moremi Reserve Headquarters, Okavango Swamp; Nov. 8, 1967; 930m.
73 " Nov 7.

76. Botswana: 25 miles south of Kachikau; Nov. 8, 1967; 930m.

10 mi. NE.
77. Botswana: Kachikau; Nov. 8, 1967; 930m.
no specimens for this locality

77. Botswana: 10 miles northeast of Kachikau; Nov. 8, 1967; 930m.

KACHIKAU
78. Botswana: 25 miles northeast of ~~the~~ Chobe Game Reserve; Nov. 9, 1967; 900m.

79. Botswana: Kasanie: Nov. 9, 1967; 900m.

80. Rhodesia: Victoria Falls; Nov. 9, 1967; 900m.

81. Zambia: Victoria Falls; Nov. 11, 1967; 900m.

82. Zambia; 28 miles northeast of Kalomo; Nov. 12, 1967; 1250m.

83. Zambia: 2 miles south of Monze; Nov. 12, 1967; 1000m.

84. Zambia: 30 miles southwest of Lusaka; Nov. 12, 1967; 950m.

85. Zambia: 16 miles south of Broken Hill; Nov. 13, 1967; 1150m.

86. Zambia: 29 miles northeast of Kapiri Mposhi; Nov. 13, 1967; 1150m.

87. Zambia: 18 miles southwest of Mkushi; Nov. 14, 1967; 1300m.

88. Zambia; 33 miles northeast of Kanona; Nov. 14, 1967; 1500m.

89. Zambia: 58 miles north of Mpika; Nov. 14, 1967; 1320m.

90. Zambia: 22 miles south of Kasama; Nov. 15, 1967; 1200m.

91. Zambia: 40 miles south of Abercorn; SENGA HILL Nov. 15, 1967; 1600m.

92. Zambia: Kalambo Falls; Nov. 15, 1967; 1150m.

93. Zambia: 10 miles northeast of Abercorn; Nov. 16, 1967; 1420m. 1150m

94. Zambia: Abercorn; Nov. 16, 1967; 1550m.

95. Tanzania: 49 miles south of Sumbawanga; Nov. 17, 1967; 1730m.

96. Tanzania: 20 miles northwest of Sumbawanga; Nov. 17, 1967; 1820m.

97. Tanzania: 48 miles northwest of Sumbawanga; Nov. 17, 1967; 1650m.

98. Tanzania: 69 miles northwest of Sumbawanga; Nov. 17, 1967; 1480m.

99. Tanzania: 59 miles south of Mpanda; Nov. 18, 1967; 1200m.

100. Tanzania: 41 miles south of Mpanda; KATAVI GAME RES. Nov. 18, 1967; 900m.

101. Tanzania: 22 miles south of Mpanda; Nov. 18, 1967; 930m.

102. Tanzania: 26 miles north of Mpanda; Nov. 18, 1967; 1250m.

103. Tanzania: 37 miles north of Mpanda; Nov. 18, 1967; 1200m.

104. Tanzania: 35 miles south of Uvinza (UVIRA); Nov. 19, 1967; 1600m.

105. Tanzania: 43 miles north of Kasulu; Nov. 19, 1967; 1150m.

106. Tanzania: 12 miles east of Geita; Nov. 20, 1967; 1200m.

107. Tanzania: Mwanza; NR. LAKE VICTORIA Nov. 21, 1967; 1100m.

108. Tanzania: 17 miles west of Ikoma; Nov. 22, 1967; 1250m.

109. Tanzania: Ikoma; Nov. 22, 1967; 1350m.

110. Tanzania: Seronera, Serengeti National Park; Nov. 24, 1967; 1450m.

111. Tanzania: Naabi Hill; SERENGETI NAT. PARK Nov. 25, 1967; 1650m.

112. Tanzania: Olduvai Gorge; Nov. 25, 1967; 1420m.

113. Tanzania: 10 miles southeast of Olduvai Gorge; Nov. 26, 1967; 1500m.

114. Tanzania: Ngorongoro Crater; Nov. 26, 1967; 1700m.

115. Tanzania: Lake Manyara National Park; Nov. 27, 1967; 900m.

116. Tanzania: Arusha; Nov. 27, 1967; 1400m.

117. Tanzania: Ngurdoto Crater National Park; Nov. 28, 1967; 1650m.
Forest ~~material~~ zone

118. Tanzania: Ngurdoto Crater National Park; Nov. 28, 1967; 1500m. 2500 m } 2 labels.
Savanna ~~material~~ zone

119. Tanzania: 23 miles south of Longido; Nov. 29, 1967; 1600m.

120. Kenya: 15 miles east of Namanga; AMBOSELI NATL. PARK Nov. 29, 1967; 1200m.

121. Kenya: Masai-Amboseli Lodge Campground; NATL. PARK, H.Q Nov. 29, 1967; 1100m.

122. Kenya: 12 miles west of Amboseli Lodge; AMBOSELI NATL. PARK Nov. 30, 1967; 1100m.

123. Kenya: 22 miles south of Kajiado; Nov. 30, 1967; 1600m.

124. Kenya: 10 miles southeast of Nairobi; Nov. 30, 1967; 1500m.
+ same 4-XII-67

OLORGASAILIE

125. Kenya: Olorigesailie; Dec. 3, 1967; 1000m.

126. Kenya: 5 miles southeast of Emali; Dec. 4, 1967; 1100m.

127. Kenya: Kibwezi; Dec. 5, 1967; 900m.

128. Kenya: 10 miles north of Mutomo; Dec. 5, 1967; 800m.

#23
S. W. AFRICA:10mi.
S. Nauchas 1580 m.
28-IX-1967
E. S. Ross &
A. R. Stephen 100

#24
S. W. AFRICA:15mi.
W. Windhoek 1620m.
28-IX-1967
E. S. Ross &
A. R. Stephen 100

#27
S. W. AFRICA:70mi.
W. Windhoek 1700m.
1-X-1967
E. S. Ross &
A. R. Stephen 75

#28
S. W. AFRICA:100mi.
W. of Windhoek 1050
m. 2-X-1967
E. S. Ross &
A. R. Stephen 400

#29
S. W. AFRICA:88mi.
E. Walvis Bay 750m
2-X-1967
E. S. Ross &
A. R. Stephen 200

AFRICAN EXPEDITION 1966-67 ROSS & LORENZEN

Stop.#

(1) LIBERIA: Harbel, Firestone Plantation, 27-VII-66
E. S. Ross &
K. Lorenzen 1000

No date: 100 / VIII-1966

(2) LIBERIA: 9mi.NE. Totota
11-VIII-1966
E. S. Ross &
K. Lorenzen 100?

(3) LIBERIA: 10 mi. NE. Gbanka
11-VIII-1966
E. S. Ross &
K. Lorenzen 150?

(4) LIBERIA:8mi.N.W. Belffanai,S.fork St.Paul river
11-VIII-1966
E. S. Ross &
K. Lorenzen 800

BELEFUANAI

(5) LIBERIA:8mi.N.W. Zorzor
12-VIII-1966
E. S. Ross &
K. Lorenzen 1800

(6) LIBERIA:8mi.N.W. Fisebu,
12-VIII-1966
E. S. Ross &
K. Lorenzen 100

(7) LIBERIA:Voinjama ~~Camp in US Comp.~~
12-VIII-1966
E. S. Ross &
K. Lorenzen 250

(8) LIBERIA:Kolahun, (Virgin forest)
13-VIII-1966
E. S. Ross &
K. Lorenzen 400

(9) LIBERIA: 20mi. S. Voinjama
13-VIII-1966
E. S. Ross &
K. Lorenzen 350

(10) LIBERIA:36mi.S. Voinjama
13-VIII-1966
E. S. Ross &
K. Lorenzen 200

Stop #

(11) LIBERIA:Sanokolé (Base of Nimba Mts.)
14-VIII-1966, 450m
E. S. Ross &
K. Lorenzen 150?

(12) LIBERIA: Crest of Mt. Nimba, 1400 m
15-VIII-1966
E. S. Ross &
K. Lorenzen 100?

(13) LIBERIA:SW. slope Mt. Nimba, 1030 m
15-VIII-1966
E. S. Ross &
K. Lorenzen 500

(14) LIBERIA: Base of Mt. Nimba
16-VIII-1966
E. S. Ross &
K. Lorenzen 200

(15) LIBERIA: 22mi. SE. Tapeta
17-VIII-1966
E. S. Ross &
K. Lorenzen 800

(16) IVORY COAST: Toulépleu, 250m
18-VIII-1966
E. S. Ross &
K. Lorenzen 400

(17) IVORY COAST:6mi. N. Toulépleu, 250m
18-VIII-1966
E. S. Ross &
K. Lorenzen 800

(18) IVORY COAST:Bafing Riv.(Forest Res.)S. of Touba, 300 m (GOUAN OU BAFING)
19-VIII-1966
E. S. Ross &
K. Lorenzen 275

(19) IVORY COAST: 5mi. S. of Touba,400m
19-VIII-1966
E. S. Ross &
K. Lorenzen 300

(20) IVORY COAST: 10 mi. S.E. Touba, 420 m
20-VIII-1966
E. S. Ross &
K. Lorenzen 300

NIGERIA: Maiduguri, 365m 19-IX-1966 E. S. Ross & K. Lorenzen 5000

Steps done: 51, 52, 53, 54, 63, 66, 67, 68, 69, 70, 71, 72, 75, 76,
171, 174, 177, 178, 179, 180, 181.

Stop #

41 GHANA:
Akomadan, 350m AKUMADAN
2-IX-1966
E. S. Ross &
K. Lorenzen 350

42 GHANA: 16 mi.
N. Kumasi, 250m
2-IX-1966
E. S. Ross &
K. Lorenzen 450

43 GHANA:
Kanonga, 230m
3-IX-1966
E. S. Ross &
K. Lorenzen 400

44 GHANA:
Mpraeso, 500 m
3-IX-1966
E. S. Ross &
K. Lorenzen 800

45 S.W. NIGERIA: 5 mi.
W. of Alagba, ~~sea level~~ 50 m.
7-IX-1966
E. S. Ross &
K. Lorenzen 1600

46 NIGERIA: Iperu
8-IX-1966
E. S. Ross &
K. Lorenzen 350

47 NIGERIA: 30 mi.
S. Ibadan, 50 m
9-IX-1966
E. S. Ross &
K. Lorenzen 500

48 NIGERIA: 10 mi.
N. Ibadan, 250m
9-IX-1966
E. S. Ross &
K. Lorenzen 300

49 NIGERIA: 22 mi.
S. Ogbomosho
350m, 9-IX-1966
E. S. Ross &
K. Lorenzen 150

50 NIGERIA:
Ogbomosho, 375m
9-IX-1966
E. S. Ross &
K. Lorenzen 260

Stop #

51 NIGERIA:
Ilorin, 300m
10-IX-1966
E. S. Ross &
K. Lorenzen 150

52 NIGERIA: Oke-Oyi
20mi. NE. Ilorin
300m, 10-IX-1966
E. S. Ross &
K. Lorenzen 150

53 NIGERIA: 8 mi.
S. Jebba, 300 m
10-IX-1966
E. S. Ross &
K. Lorenzen 150

54 NIGERIA: 19 mi.
N. Bokani, 250m
10-IX-1966
E. S. Ross &
K. Lorenzen 200

55 NIGERIA: 9 mi.
E. Kontagora, 300m
11-IX-1966
E. S. Ross &
K. Lorenzen 150

56 NIGERIA: 4mi. N.
Kagara, E. Kontagora
360 m, 11-IX-1966
E. S. Ross &
K. Lorenzen 150

57 NIGERIA: 21 mi.
W. Kaduna, 650 m
11-IX-1966
E. S. Ross &
K. Lorenzen 200

58 NIGERIA: 45 mi.
SW. Kano, 680 m
12-IX-1966
E. S. Ross &
K. Lorenzen 200

59 NIGERIA: 36 mi.
SE. Zaria, 720m NE
13-IX-1966 LABEL ~~N.E.~~
E. S. Ross &
K. Lorenzen 125

60 NIGERIA: 28 mi.
~~NE~~. Zaria, 720 m NE
14-IX-1966 LABEL ~~N.E.~~
E. S. Ross &
K. Lorenzen 175

Stop #

61 NIGERIA: 10mi.
SE. Soba, 740 m
14-IX-1966
E. S. Ross &
K. Lorenzen 150

62 NIGERIA: 36 mi.
SE. Soba, 790 m
14-IX-1966
E. S. Ross &
K. Lorenzen 125

63 NIGERIA: 10 mi.
NW. Jos, 1225 m
14-IX-1966
E. S. Ross &
K. Lorenzen 150

64 NIGERIA:
Jos, 1250 m
15-IX-1966
E. S. Ross &
K. Lorenzen 150

65 NIGERIA: 6 MI.
S. Jos, 1250 m
16-IX-1966
E. S. Ross &
K. Lorenzen 300

66 NIGERIA:15 mi.SW.
Bukuru, ~~SW.~~ Jos Plateau
16-IX-1966 925m.
E. S. Ross &
K. Lorenzen 500

67 NIGERIA: 7 mi.
E. Bauchi, 570m
17-IX-1966
E. S. Ross &
K. Lorenzen 30

68 NIGERIA: 12 mi.
N. Bauchi, 600m
18-IX-1966
E. S. Ross &
K. Lorenzen 50

69 NIGERIA: Bauchi Prov.
3mi.SW.Lanzai,430m
18-IX-1966
E. S. Ross &
K. Lorenzen 350

70 NIGERIA: 10 mi.
E. Damagun,475m
18-IX-1966
E. S. Ross &
K. Lorenzen 500

Stop #

71 NIGERIA:22mi.
E. Damaturu,400m
18-IX-1966
E. S. Ross &
K. Lorenzen 200

72 NIGERIA:
Maiduguri,365m
19-25.IX.1966 19.IX
E. S. Ross &
K. Lorenzen 6000

73 NIGERIA: Bama, at
S.U.M. Mission,370m
26-IX-1966
E. S. Ross &
K. Lorenzen 150

74 NIGERIA: 13mi.N.
Gwoza, 400 m
27-IX-1966
E. S. Ross &
K. Lorenzen 250

75 NIGERIA: Gwoza
Mission compound
400m, 27-IX-1966
E. S. Ross &
K. Lorenzen 3000

76 NIGERIA: 7 mi. N. of Mubi
N. Uba, 500 m
28-IX-1966
E. S. Ross &
K. Lorenzen 200

77 CAMEROUN: 2mi. N.
Mayo-Zadra, 820 m N.W of Garoua
28-IX-1966
E. S. Ross &
K. Lorenzen 175

78 CAMEROUN: 15 mi.S.
Mayo-Zadra, 530 m
28-IX-1966
E. S. Ross &
K. Lorenzen 150

79 CAMEROUN: 35 mi. N.
Garoua, 480 m
28-IX-1966
E. S. Ross &
K. Lorenzen 250

80 CAMEROUN: 52mi.S.
Garoua, ~~S.~~ Boki River
330 m, 29-IX-1966
E. S. Ross &
K. Lorenzen 600

Stop #

81 CAMEROUN: 15 mi.
S. Gamba, 650 m
30-IX-1966
E. S. Ross &
K. Lorenzen 350

82 CAMEROUN: 29 mi.N.
Ngaoudéré, 1230 m
30-IX-1966 A.P.
E. S. Ross &
K. Lorenzen 175

83 CAMEROUN: 18 mi. N.
Ngauundéré, ~~at base of con.peak rising from~~ Adamaoa Plateau,
1350 m, 30-IX-1966
E.S.Ross&K.Lorenzen 400 *

84 CAMEROUN:
Ngaoundéré,1100m
1-X-1966 A.P.
E. S. Ross &
K. Lorenzen 350

85 CAMEROUN: 28 mi.SE.
Ngaoundéré, 1250 m A.P.
1-X-1966
E. S. Ross &
K. Lorenzen 400

86 CAMEROUN: 20 mi.
NW.Meiganga,1050m
2-X-1966
E. S. Ross &
K. Lorenzen 250

87 CAMEROUN: 14 mi.NE.
Bétaré-Oya, 930 m
3-X-1966
E. S. Ross &
K. Lorenzen 250

88 CAMEROUN:
Bertoua, 660 m
4-X-1966
E. S. Ross &
K. Lorenzen 600

89 CAMEROUN: 10 mi.
W. Bertoua, 640m
5-X-1966
E. S. Ross &
K. Lorenzen 550

90 CAMEROUN: 36 mi.
W. Bertoua, 620m
5-X-1966
E. S. Ross &
K. Lorenzen 550

Stop #

91 CAMEROUN: Nanga-
Eboko, 620 m.
5-X-1966
E. S. Ross &
K. Lorenzen 800

92 CAMEROUN: 27 mi.W.
Nanga-Eboko, 580 m
6-X-1966
E. S. Ross &
K. Lorenzen 350

93 CAMEROUN: 7 mi.
E. Batchenga,480m
6-X-1966
E. S. Ross &
K. Lorenzen 350

94 CAMEROUN:Mt. Fébé,
Yaoundé, 1050 m
9-X-1966 1500
E. S. Ross &
K. Lorenzen

95 CAMEROUN: 12 mi.E.
Mbalmayo, 660 m
* 11-X-1966 400
E. S. Ross &
K. Lorenzen

96 CAMEROUN: 11 mi. (near Mbalmayo)
N. Kombe, 700 m 350
11-X-1966
E. S. Ross &
K. Lorenzen

97 CAMEROUN: Ekok
24mi.E.Tekmo,650m
11-12.X.1966 2500
E. S. Ross &
K. Lorenzen

98 CAMEROUN: Sawmill,
10 mi. W. Tekmo
710m, 13-X-1966 1500
E. S. Ross &
K. Lorenzen

99 CAMEROUN: 7 mi.
S. Ebolowa,580m
15-17.X.1966 2500
E. S. Ross &
K. Lorenzen

100 CAMEROUN:Ebolowa,
~~Presb.Mission~~,600m
17-17-X-1966 250
E. S. Ross &
K. Lorenzen

Stop #

101 CAMEROUN:
Akom, 450 m
18-X-1966
E. S. Ross &
K. Lorenzen 600?

102 CAMEROUN: 5 mi.
N. Kribi, 2 m
19-X-1966
E. S. Ross &
K. Lorenzen 350

103 CAMEROUN: 36 mi.
N. Kribi, 100 m
19-X-1966
E. S. Ross &
K. Lorenzen 450

104 CAMEROUN: 12 mi.
SW. Loum, 170 m
MungoForestCamp
22-X-1966 E.S.
Ross & K.Lorenzen 400

105 CAMEROUN: 6 mi.
S. Kumba, 180 m
22-X-1966
E. S. Ross &
K. Lorenzen 1000

106 CAMEROUN: Cameroon
Mt., above Buea
1500 m, 24-X-1966
E. S. Ross &
K. Lorenzen 300

107 CAMEROUN: Buea,
Baptist college
below town, 780m
24-X-1966, E.S.
Ross&K.Lorenzen 500

108 CAMEROUN: Lac Barombi Mbo, Kumba,
~~Rim of Crater lake~~
400 m, 25-X-1966
E. S. Ross &
K. Lorenzen 350

109 CAMEROUN: Nyasoso
on Mt. Koupé, 900m
26-X-1966
E. S. Ross &
K. Lorenzen 250

110 CAMEROUN: 2 mi. N.
Bafang, 1150 m
28-X-1966
E. S. Ross &
K. Lorenzen 300

Stop #

111 CAMEROUN: near Bamenda 2 mi.NW.
Mbouda, 1400 m
29-X-1966
E. S. Ross &
K. Lorenzen 350

112 CAMEROUN: 9mi NE.
Bamenda, ~~at~~ Bambui
1450m, 29-X-1966
E. S. Ross &
K. Lorenzen 200

113 CAMEROUN: 12mi.N.E.
Bamenda, aboveBambui
1730 m, 30-X-1966
E. S. Ross &
K. Lorenzen 650

114 CAMEROUN: Bamessing, 18mi.N.E.
Bamenda, ~~SW. edge of Ndop Plain~~, 1170m
1-XI-1966, E.S.Ross
& K. Lorenzen 300

115 CAMEROUN: 20mi.NW.
Foumban, 1230 m
1-XI-1966
E. S. Ross &
K. Lorenzen 150

116 CAMEROUN:
Nkongsamba, 960m
2-XI-1966
E. S. Ross &
K. Lorenzen 500

117 CAMEROUN: Mt. Fébé
Yaoundé
7-XI-1966
E. S. Ross &
K. Lorenzen 350

118 CAMEROUN: Yaoundé.
Centre Agron, 710m ~~(Agric. college)~~
8-XI-1966
E. S. Ross &
K. Lorenzen 550

119 CAMEROUN: Makak,
90km SW. Yaoundé
650 m, 10-XI-1966
E. S. Ross &
K. Lorenzen 600

120 CAMEROUN: 9 mi.
S. Mbanga, 50 m
16-XI-1966
E. S. Ross &
K. Lorenzen 275

Stop #

121 CAMEROUN: Lac Barombi Mbo, Kumba ~~Crater rim~~, 400m
16-XI-1966
E. S. Ross &
K. Lorenzen 1050

122 CAMEROUN: 14mi.
E. Douala, 80 m 200
20-XI-1966
E. S. Ross &
K. Lorenzen 350

123 CONGO: Matadi
10 m, 26-XI-1966 100
E. S. Ross &
K. Lorenzen 250

124 ANGOLA: Luanda
60 m, 30-XI-1966
E. S. Ross & 250
K. Lorenzen ~~100~~

125 ANGOLA: 18 mi.
N. Luanda, 120m
1-XII-1966
E. S. Ross &
K. Lorenzen 300

126 ANGOLA: 5 mi.N.
Luanda, 80 m
1-2.XII.1966 425
E. S. Ross &
K. Lorenzen 1500

127 ANGOLA: 11mi.W.
Salazar, 420 m 100
3-XII-1966
E. S. Ross &
K. Lorenzen 300

128 ANGOLA: 7mi.W.
Cacuzo, 1010 m
3-XII-1966
E. S. Ross &
K. Lorenzen 1050

129 ANGOLA: 10 mi.W.
Malange, 1120 m
4-XII-1966
E. S. Ross & 350
K. Lorenzen

130 ANGOLA: 7mi. W.
Xandel, 1170 m
4-XII-1966
E. S. Ross & 500
K. Lorenzen

Stop #

131 ANGOLA: 21mi.E.
Xandel, 750 m
4-XII-1966 800
E. S. Ross &
K. Lorenzen ~~250~~

132 ANGOLA: 30mi.E.
Xandel, 820 m
5-XII-1966 300
E. S. Ross &
K. Lorenzen

no# ANGOLA: Grutas de
Cacolo, 25mi.W.
Malange, 1150 m 250
5-XII-1966, E.S.
Ross & K. Lorenzen

133 ANGOLA: 4 mi.W.
Salazar, 700 m
5-XII-1966 500
E. S. Ross &
K. Lorenzen

134 ANGOLA: 6mi.S.
Quibala, 1230m
6-XII-1966 250
E. S. Ross &
K. Lorenzen

135 ANGOLA: 10mi.N.
Sao Comba Dão
1230m, 6-XII-66 200
E. S. Ross &
K. Lorenzen

136 ANGOLA: 6mi. S.
Rob't. Williams
1630m, 7-XII-66 400
E. S. Ross &
K. Lorenzen

137 ANGOLA: 2mi.N.
Caconda, 1650m
7-XII-1966 1000
E. S. Ross &
K. Lorenzen

138 ANGOLA: 20 mi.S. 20 mi S. CACONDA
Caconda, 1680 m 1680 m. 8-XII-66
8-XII-1966
E. S. Ross & 500
K. Lorenzen

139 ANGOLA: 23mi. W.
Folgares, 1200m
8-XII-1966
E. S. Ross & 1000
K. Lorenzen

Stop #

140 ANGOLA: 16mi. W.
Paiva Couceiro
1330m, 9-XII-1966
E. S. Ross &
K. Lorenzen 300

141 ANGOLA: 4 mi.S.
Sá da Bandeira
1630m, 9-XII-66
E. S. Ross &
K. Lorenzen 1000

142 ANGOLA: 5mi. N.
Sá da Bandeira
1800 m,10-XII-66
E. S. Ross &
K. Lorenzen 600

143 ANGOLA: 17mi.W.
Vila Arriaga
620m, 10-XII-66
E. S. Ross &
K. Lorenzen 1500

144 ANGOLA: 38mi.W.
Vila Arriaga
350 m, 11-XII-1966 300
E. S. Ross &
K. Lorenzen

145 ANGOLA: 30mi.N.E.
Mocamedes, 500 m
11-XII-1966
E. S. Ross & 300
K. Lorenzen

146 ANGOLA: 24mi.N.E.
Moçâmedes, 400 m
12-XII-1966
E. S. Ross & 350
K. Lorenzen

147 ANGOLA: 5mi.E.
Vila Arriaga,
920m,13-XII-66
E. S. Ross & 2000
K. Lorenzen

148 ANGOLA:12mi.SE.
Sá da Bandeira
1600m, 14-XII-66 1000
E. S. Ross &
K. Lorenzen

149 ANGOLA: 16 mi. S.E.
~~Joao~~ Vila João de Almeida
1350 m, 15-XII-1966 500
E. S. Ross &
K. Lorenzen

Stop #

150 ANGOLA: 10mi. S.
Chibemba, 1200 m
15-XII-1966 250
E. S. Ross &
K. Lorenzen

151 ANGOLA: 26 mi.S?
Chibemba, 1170 m
15-XII-1966 1500
E. S. Ross &
K. Lorenzen

152 ANGOLA: 19 mi.SE.
Rocadas, 1100 m
16-XII-1966 350
E. S. Ross &
K. Lorenzen

153 ANGOLA: 10mi. SE.
Mongua, 1100 m
16-XII-1966 1500
E. S. Ross &
K. Lorenzen

154 S.W. ~~ANGOLA~~ AFRICA: 24mi.
SE. Ondangua,1100m
17-XII-1966 800
E. S. Ross &
K. Lorenzen

155 S.W. ~~ANGOLA~~ AFRICA: 44mi.
SE. Ondangua,1100m
18-XII-1966 350
E. S. Ross &
K. Lorenzen

156 S.W. ~~ANGOLA~~ AFRICA: 12 mi.
NW. Namutoni,1080 m
18-XII-1966 350
E. S. Ross &
K. Lorenzen

157 S.W. ~~ANGOLA~~ AFRICA: 10 mi.
SE. Namutoni,1100 m
18-XII-1966 1000
E. S. Ross &
K. Lorenzen

158 S.W. ~~ANGOLA~~ AFRICA: 27mi.
SE. Tsumeb, 1400 m
19-20.XII.1966 8000
E. S. Ross &
K. Lorenzen

159 S.W. ~~ANGOLA~~ AFRICA: 15 mi.
NE. Waterberg,1470m
21-XII-1966 350
E. S. Ross &
K. Lorenzen

Stop #

160 S.W. ~~ANGOLA~~ AFRICA: 3 mi.
NE. Waterberg, 1420m
21-XII-1966
E. S. Ross &
K. Lorenzen 8000 ~~6000~~ *

161 S.W. ~~ANGOLA~~ AFRICA: 13mi
SE. Welwitschia.
800m, 22-XII-1966
E. S. Ross &
K. Lorenzen 400

162 S.W. ~~ANGOLA~~ AFRICA: 40mi.
E. Swakopmund,
1200m, 24-XII-1966
E. S. Ross &
K. Lorenzen 600

163 S.W. ~~ANGOLA~~ AFRICA: 48mi.
W. Anschluss,
1480m, 25-XII-1966
E. S. Ross &
K. Lorenzen 350

164 S.W. ~~ANGOLA~~ AFRICA: 15mi.
SW. Windhoek
1800m, 25-XII-1966
E. S. Ross &
K. Lorenzen * 4000

165 S.W. AFRICA: 34mi. W. USAKOS
W. Spitzekopfe
1050m, 28-XII-1966
E. S. Ross &
K. Lorenzen 500

166 S.W. AFRICA: 25mi. SW. USAKOS
~~SW.~~ Spitzekopfe
980m, 29-XII-1966
E. S. Ross &
K. Lorenzen 300

167 S.W. AFRICA: Gobabeb
Namib Res. Station
350m, 29-XII-1966
E. S. Ross &
K. Lorenzen 1500

168 S.W. AFRICA: 16mi.
SE. Rooibank
330m, 1-I-1967
E. S. Ross &
K. Lorenzen 250

169 S.W. AFRICA: 36mi. W.
Usakos, KleinSpitzekopfe
920 m, 1-I-1967
E. S. Ross &
K. Lorenzen 800

Stop #

170 S.W. AFRICA: 10 mi.
N. Windhoek, 1500 m
2-I-1967
E. S. Ross &
K. Lorenzen 1500

171 S.W. AFRICA: 10 mi.
N. Mariental (Hardap
Dam) 1100m, 3-I-1967 ?
E. S. Ross &
K. Lorenzen 1500

172 S. AFRICA: 3 mi. S.
Port Nolloth, 1 m
5-I-1967
E. S. Ross &
K. Lorenzen 350

173 S. AFRICA: 13 mi. S.
Garies, 300 m
6-I-1967
E. S. Ross &
K. Lorenzen 1000

174 S. AFRICA: 2 mi. S.
Papendorp, 2 m
6-I-1967
E. S. Ross &
K. Lorenzen 1000

175 S. AFRICA: 6 mi. S.E.
Algeria, (nr. Sederberg) 770 m
8-I-1967
E. S. Ross &
K. Lorenzen 500

176 S. AFRICA: 5 mi. S.E.
Sederberg, 730 m
8-I-1967
E. S. Ross &
K. Lorenzen 500

177 S. AFRICA: 5 mi. S.W.
Ceres, 290 m
8-I-1967
E. S. Ross &
K. Lorenzen 150

178 SOUTH AFRICA:
15mi. W. Calendon
~~200~~ 200 m 14-I-1967
E. S. Ross &
K. Lorenzen 200

179 SOUTH AFRICA: 19mi.
W. Swellendam
~~150 m~~ 150 m 14-I-1967
E. S. Ross &
K. Lorenzen 200

Stop #

180 SOUTH AFRICA:6mi.
NW. Port Beaufort
70 m 14-I-1967
E. S. Ross &
K. Lorenzen 200

181 SOUTH AFRICA:
10 mi. E. Paarl
250m 15-I-1967
E. S. Ross &
K. Lorenzen 200

83a CAMEROUN: 21 mi.N.
N Gaoundere, 1350m
30-IX-1966 25

83b CAMEROUN:28mi.SE.
N Gaoundere,1250m
1-X-1966
E. S. Ross &
K. Lorenzen 200

CAMEROUN:
Douala, 10 m.
20-X-1966
E. S. Ross &
K. Lorenzen 50

CAMEROUN: 14 mi.
N. Garoua, 350 m
29-IX-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN: 2 mi.S.
Muyuka, 140 m
25-X-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN: Lebomba
(nr. Minka) 650 m
9-XI-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN:
Yaoundé, 750 m
6-XI-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN: 2 mi.N.
Bafang, 1050 m
2-XI-1966
E. S. Ross &
K. Lorenzen 50

Stop #

CAMEROUN: 29mi. N.
Garoua, 420 m
29-IX-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN:
Garoua, 310 m
29-IX-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN: 12 mi.
W. Ebolowa, 550m
18-X-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN: 3 mi. NE.
Bamenda, 1250 m
30-X-1966
E. S. Ross &
K. Lorenzen 50

CAMEROUN: 7 mi.SE.
Meiganga, 900 m
3-X-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN:
Dega, 900 m
3-X-1966
E. S. Ross &
K. Lorenzen 25

CAMEROUN: Ebolowa
600 m, 14-IX-1966
E. S. Ross &
K. Lorenzen 75

CAMEROUN: Guibjara
400 m, 30-IX-1966
E. S. Ross &
K. Lorenzen 25

GHANA: 16 mi. N.
Kumasi, 250 m
2-IX-1966
E. S. Ross &
K. Lorenzen 25

S.W. AFRICA:
Tsumeb, 1260 m
19-XII-1966
E. S. Ross &
K. Lorenzen 25

ANGOLA: 25 mi. W.
Melanje, 1150 m
5-XII-1966
E. S. Ross &
K. Lorenzen 50

ANGOLA: 35mi.S.E.
Mocamedes, 350 m
12-XII-1966
E. S. Ross &
K. Lorenzen 25

ANGOLA: 4 mi.SE.
Cahama, 1100 m
16-XII-1966
E. S. Ross &
K. Lorenzen 50

ANGOLA:
Nova Lisboa,1600m
7 December 1966
E. S. Ross &
K. Lorenzen 25

ANGOLA: 6 mi. S.
Mocamedes, 50 m
11-XII-1966
E. S. Ross &
K. Lorenzen

found ~~only~~ on ~~Welwitchia~~
Welwitchia ~~mirabolis~~ 50

ANGOLA: 11 mi. NE.
Mocamedes, 70 m
11-XII-1966
E. S. Ross &
K. Lorenzen 25

ANGOLA: 22mi. SE.
Sa da Bandeira
1450m, 14-XII-1966
E. S. Ross &
K. Lorenzen 100

ANGOLA: 24 mi.
S.E. Mongua,1080m
17-XII-1966
E. S. Ross &
K. Lorenzen 50

ANGOLA: Cahama
1120 m, 16-XII-1966
E. S. Ross &
K. Lorenzen 25

ANGOLA: 10mi.S.
Mocamedes,170 m
11-XII-1966
E. S. Ross &
K. Lorenzen 25

ANGOLA:48mi. S.
Mocamedes, 350m
12-XII-1966
E. S. Ross &
K. Lorenzen 150

S.W. AFRICA:30mi.
E. Swakopmund 1080m
24-XII-1966
E. S. Ross &
K. Lorenzen 25

S.W. AFRICA:3mi.E.
Hentiesbaai, 50 m
23-XII-1966
E. S. Ross &
K. Lorenzen 100

S.W. AFRICA: 12mi.S.
Hentiesbaai, 1 m
24-XII-1966
E. S. Ross &
K. Lorenzen 50

S.W. AFRICA:
Walvis Bay, 1 m
1-I-1967
E. S. Ross &
K. Lorenzen 50

S.W. AFRICA: 2mi. S.
Brukkaros, 920 m
4-I-1967
E. S. Ross &
K. Lorenzen 50

S.W. AFRICA:
Vioolsdrift, 200 m
5-I-1967
E. S. Ross &
K. Lorenzen 50

S.W. AFRICA: 40mi
W. Klein Karas,810m
4-I-1967
E. S. Ross &
K. Lorenzen 50

S. AFRICA: 17mi.SE.
Sederberg, 520 m
8-I-1967
E. S. Ross &
K. Lorenzen 25

S. AFRICA: 8mi. W.
Steinkopf, 750 m
6-I-1967
E. S. Ross &
K. Lorenzen 25

15 May 1967

Mr. Eric M. Fisher
Department of Biology
California State College
Long Beach
California 90804

Dear Mr. Fisher:

Your letter of May 9th transmitting the new species **Holopogon fisheri**